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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,955	07/28/2003	Sanjiv Nanda	030280	6170
23696 7590 11/02/2010 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER CAL WAYNE HUU				
ART UNIT 2617		PAPER NUMBER		
NOTIFICATION DATE 11/02/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

Office Action Summary

Application No.

10/628,955

Applicant(s)

NANDA ET AL.

Examiner

WAYNE CAI

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date 6/3/10
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 3, 2010 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-50 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on June 3, 2010 was filed after the mailing date of the Final Office Action on March 3, 2010. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 2, 5, 9, 11, 14, 16, 17, 20, 24, 26, 31, 32, 35, 39, 40, 43, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (hereinafter "Liu", US 7,072,315) in view of Shiobara (US 5,535,214. Note: Applicant's cited references).

Regarding claims 1, 16 and 39, Liu discloses in a communication system, a method, apparatus and program for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (col. 6, lines 34-57 and col. 8, lines 44-59);

determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission deadline for each of said packets of data (col. 6, lines 34-57, col. 8, lines 44-59, col. 9, lines 5-16 and col. 9, lines 38-65).

Liu, however, does not expressly disclose:

determining a transmission deadline of each of said packets of data;

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

Shiobara discloses timely processing of transmission and reception requests in multi-node communication network. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline at col. 7, lines 21-54);

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu's invention and arrive at the present invention by including the above steps.

The motivation/suggestion for doing so would have been to allow effective use of the system resources while able to guarantee service to certain traffic classes.

With further regard to claim 31, Liu and Shiobara disclose all features of this claim. In addition, Liu also discloses a processor in the mobile station (i.e., subscriber station as taught by Liu includes a processor).

Regarding claims 9 and 24, Liu discloses in a communication system, a method and an apparatus for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (col. 6, lines 34-57 and col. 8, lines 44-59);

determining a number of data rates for transmission of the packets of data based on the number of possible queue arrangements (i.e., channel allocation is based on

subscribers' data rates and service types as described at col. 6, lines 34-57, col. 8, lines 44-59, col. 9, lines 5-16 and col. 9, lines 38-65).

Liu, however, does not expressly disclose:

determining a transmission deadline of each of said packets of data;

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

Shiobara discloses timely processing of transmission and reception requests in multi-node communication network. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline at col. 7, lines 21-54);

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu's invention and arrive at the present invention by including the above steps.

The motivation/suggestion for doing so would have been to allow effective use of the system resources while able to guarantee service to certain traffic classes.

Regarding claims 2, 17, 32, and 40, Liu and Shiobara disclose all limitations recited within claims as described above. Liu also discloses communicating said data rate from said mobile station to said base station (col. 9, lines 5-16).

Regarding claims 5, 20, 35 and 43, Liu and Shiobara disclose all limitations recited within claims as described above. Liu also discloses further comprising: determining whether available resources allows for allocation at said base station for transmission from said mobile station at said data rate (col. 9, lines 5-16).

Regarding claims 11 and 26, Liu and Shiobara disclose all limitations recited within claims as described above. Liu also discloses communicating said number of data rates from said mobile station to said base station (col. 8, lines 37-59 and col. 9, lines 5-16).

Regarding claim 14, Liu and Shiobara disclose all limitations recited within claims as described above. Liu also discloses determining whether available resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (i.e., allocate channel based on a number of factors as described at col. 9, lines 5-16).

Regarding claims 49 and 50, Liu and Shiobara disclose all limitations recited within claims as described above. Although Liu and Shiobara do not expressly disclose examining deadlines for all of the packets or a first packet in the queue to determine the data rate for transmissions; Liu and Shiobara expressly disclose examining the deadlines of packets in order to determine the data rate for transmissions. Hence, it is obvious and/or well known in the art to modify these teachings and arrive at the present

invention to include the claimed features simply based on the design choice. That is to selectively examine deadlines of a particular packet as desired to determine the data rate.

The motivation/suggestion for doing so would have been to improve throughput rates.

6. Claims 10 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (hereinafter "Liu", US 7,072,315) in view of Shiobara and further in view of Berruto (EP 0 627 827. Note: Applicant's cited references).

Regarding claims 10 and 25, Liu and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose features of these claims.

In a similar endeavor, Berruto discloses a method of controlling transmission on a same radio channel. Berruto also discloses wherein said number of determined data rates include a required data rate (i.e., considered as a typical data rate as described at paragraph 0010) and at least one congestion level data rate (i.e., to determine different data rate to meet the cost due to congestion as described at paragraph 0038).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu and Shiobara's invention and arrive at the present invention by including the above features.

The motivation/suggestion for doing so would have been to optimize the transmissions.

7. Claims 3, 4, 12, 13, 18, 19, 27-29, 33, 34, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara and further in view Sherman (US 2003/0161340).

Regarding claims 3, 18, 33 and 41, Liu and Shiobara disclose all limitations recited within claims as described above. As discussed above in the rejections of independent claims, Liu and Shiobara also discloses determining data rate for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

Regarding claims 4, 19, 34 and 42, Liu, Shiobara, and Sherman disclose all limitations recited within claims as described above. Sherman also discloses communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

Regarding claims 12 and 27, Liu and Shiobara disclose all limitations recited within claims as described above. As discussed above in the rejections of independent claims, Liu discloses determining number of data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

Regarding claims 13 and 28, Liu, Shiobara, and Sherman disclose all limitations recited within claims as described above. Sherman also discloses

communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

Regarding claim 29, Liu, Shiobara, and Sherman disclose all limitations recited within claims as described above. Liu also discloses determining whether available resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (col. 8, lines 37-59).

8. Claims 6, 15, 21, 36 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara and further in view of Vadgama (US 2003/0083069).

Regarding claims 6, 21, 36 and 44, Liu and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for transmission from said mobile station at said data rate.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for

transmission from said mobile station at said data rate (MS obtains congestion levels as described at paragraphs 0101 and 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu and Shiobara's invention and arrive at the present invention by including an indication of a congestion level.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

Regarding claim 15, Liu and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates (i.e., to share transmission channel from base stations to indicate which base station is better, which means have available resource for use by the mobile stations as described at paragraph 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu and Shiobara's invention and arrive at the present invention by including an indication of available resources allowed for allocation.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

9. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara in view of Sherman and further in view of Vadgama.

Regarding claim 30, Liu, Shiobara and Sherman disclose all limitations recited within claims as described above, but do not expressly disclose indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses means for indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates (i.e., to share transmission channel from base stations to indicate which base station is better, which means have available resource for use by the mobile stations as described at paragraph 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu, Shiobara and Sherman's invention and arrive at the present invention by including an indication of available resources allowed for allocation.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

10. Claims 7, 22, 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara in view of Vadgama (US 2003/0083069), and further in view of Holden (US 6,134,218. Note: Applicant's cited references).

Regarding claims 7, 22, 37, and 45, Liu, Shiobara, and Vadgama disclose all limitations recited within claims as described above, but do not expressly disclose dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate.

In a similar endeavor, Holden discloses many dimensional congestion detection system and method. Holden also discloses dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data (col. 9, lines 29-34) and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate (col. 9, lines 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cited references and arrive at the present invention by dropping a packet and determining a new data rate.

The motivation/suggestion for doing so would have been to allow effective use of system resources while able to guarantee service to certain traffic classes.

11. Claims 8, 23, 38 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara in view of Vadgama in view of Holden and further in view of Sherman.

Regarding claims 8, 23, 38, and 46, Liu, Shiobara, Vadgama and Holden disclose all limitations recited within claims as described above. As discussed above, Liu, Shiobara, Vadgama and Holden also discloses determining data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of references, however, does not expressly disclose determining a new duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

12. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Shiobara and further in view of Bantz et al. (hereinafter "Bantz", US 5,394,433).

Regarding claim 47, Liu and Shiobara disclose all limitations recited within claims as described above. Shiobara also discloses wherein updated information relating to packet delay deadlines are available at the mobile station (i.e., having the knowledge of urgency as described at col. 6, lines 30-60). The combination of Liu and Shiobara, however, does not expressly disclose wherein updated information relating to the queue length available at the mobile station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein updated information relating to the queue length available at the mobile station (col. 9, line 55 col. 10, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu and Shiobara's invention by including updated information relating to the queue length available at the mobile station.

The motivation/suggestion for doing so would have been to minimize the delivery of packet to end users.

Regarding claim 48, Liu and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose wherein a resource manager allocating the negotiated Quality of Service is performed at the base station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein a resource manager allocating the negotiated Quality of Service is performed at the base

station (i.e., base station allocate slots for mobile transmission, which is allocating negotiated QoS as described at col. 7, lines 47-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Liu and Shiobara's invention by including a resource manager allocating the negotiated Quality of Service is performed at the base station.

The motivation/suggestion for doing so would have been to ensure that mobile stations have enough resources for transmission and also meet the channels reliability and QoS requirements.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Hosein (7,706,403) discloses a method and apparatus for queuing delay based on rate control (see Figures 2 and 3).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WAYNE CAI whose telephone number is (571)272-7798. The examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Cai/
Primary Examiner, Art Unit 2617